

Review Comments
Surface Water and Sediment Trap Field Sampling Plan
Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling
Portland Harbor Superfund Site
Dated January 17, 2018

Review Comments dated February 5, 2018

Following are the United States Environmental Protection Agency's (EPA's) comments on the document titled *Portland Harbor Superfund Site, Pre-Remedial Design Investigation and Baseline Sampling, Surface Water and Sediment Trap Field Sampling Plan* (herein referred to as the FSP) prepared by AECOM Technical Services (AECOM) and Geosyntec Consultants (Geosyntec) on behalf of Portland Harbor Pre-RD AOC Group. The FSP was prepared to support the surface water and sediment trap sampling efforts outlined in the PDI Work Plan Pre-RD Investigation Studies Work Plan ([PDI Work Plan] Geosyntec 2017).

EPA understands the purpose of the FSP is to provide details on the proposed surface water and sediment trap sampling procedures necessary to generate the data needed to achieve the project-specific data quality objectives (DQOs) and data use objectives established in the FSP and the PDI quality assurance project plan (QAPP). The purpose of EPA's review is to assess if the FSP complies with the objectives of the surface water and sediment trap sampling described in the PDI Work Plan.

EPA's comments are categorized as "Primary," which identify concerns that must be resolved to achieve the objective; "To Be Considered," which, if addressed or resolved, would reduce uncertainty, improve confidence in the document's conclusions, and/or best support the objectives; and "Matters of Style," which substantially or adversely affect the presentation or understanding of the technical information provided in the document.

Primary Comments

1. The Pre-RD Group must be prepared at all times for the collection of split samples during the whole water peristaltic pump sampling and from the sediment trap composites, per EPA direction. Coordination by the Pre-RD Group to accommodate an EPA representative onboard the sampling vessel must occur prior to field mobilizations.
2. A health and safety plan or addendum specific to the surface water and sediment trap sampling must be included as an attachment to the FSP. The Programmatic HAZWOPER Health and Safety Plan for the Portland Harbor Pre-RD Investigation and Baseline Sampling (AECOM 2018) states that "Because study area-specific sampling locations, methods, media, and other detailed information are to be developed for each study, safety procedures specific to that field study will be documented as an addendum to this Programmatic HASP. Each HASP Addendum will be included as an attachment to the FSP prepared for the proposed field activity." The health and safety plan must cover surface water and sediment trap sampling activities hazard analysis, diver safety, working overwater, handling acid and solvents used for cleaning high volume sampling supplies, safety and spill equipment, emergency procedures, and contact information.
3. While it is justified to utilize methods consistent with previous EPA-approved sampling plans, this FSP must serve as a stand-alone reference in the field. Accordingly, all appropriate details related to sample collection procedures must be provided in Section 4 of the FSP, and current standard operating procedures (SOPs) must be provided as an appendix. Referencing previous field sampling plans is not sufficient, and

may potentially lead to confusion in instances where sampling procedures presented in previous documents are different than those in the FSP. Additionally, it is not practical for field staff to cross-reference multiple sampling plans to obtain details on different aspects of field work. Furthermore, it is unclear if the SOPs referenced in the 2002 Round 1 Field Sampling Plan, 2004 Round 2A Field Sampling Plan – Surface Water, and 2006 Round 3 Field Sampling Plan conform to current industry standards, and recent versions of SOPs must be used so that changes to industry standards are incorporated into fieldwork.

4. Procedures for performing the handheld acoustical Doppler current profiler and the particle size distribution and particle concentrations using laser in situ scattering and transmissometry measurements are missing and must be provided in the FSP. Specifications for the equipment to be used, calibration procedures, and field data recording forms must be included.
5. The FSP must address potential concerns of loss of volatile organic compounds (VOCs) during the transfer and compositing of peristaltic pump (PP) surface water samples in the collection carboy. Collection of surface water samples for VOC analysis and compositing them in a carboy prior to analysis is a new procedure that was not in the previously approved RI FSPs. The process could result in detections being biased low.
6. Collection of rinsate or filter blanks on the sampling filters must be included the QA/QC sampling for the PP sampling in Table 6 and dissolved organic carbon (DOC) must be included in the list of analyses for these samples. Environmental filters are typically only certified for filtering metals and anions samples and are a potential source of carbon contamination for DOC samples. It is recommended that filters be purged before collecting DOC samples. This can be accomplished by collecting other filtered samples before DOC and/or pumping sample water through the filter before DOC collection.
7. In Section 4.3.1, a more detailed discussion is needed regarding the rationale for selecting a 300-liter sample volume, and the ability for method detection limits to be less than ROD cleanup levels.

To be Considered Comments

1. Table 5a, page 1 of 2, last row under Surface Water-Peristaltic Pump Samples, Dissolved Organic Carbon: Phosphoric acid to a pH of less than 2 is listed as the preservative for DOC. The use of phosphoric acid should be verified because DOC samples are typically preserved with hydrochloric acid or sulfuric acid to a pH of less than 2, the same requirement as total organic carbon. Table 5a should state the timing and frequency of calibration of sondes during each of the sample collection events. Table 5a should also note that per the SOP in Appendix B, collection of XAD-2 samples will required 1-gallon Ziplock bags and 8 oz. glass jars.
2. Section 2, page 3, paragraph 2. In this section, Sampling Design and Approach, it states that “sediment traps will be deployed at approximately the same time intervals as the surface water sampling to capture high-flow, low-flow, and high-flow storm conditions” needs clarification. The FSP states that the sediment traps will be deployed for approximately 4-months at a time over a one-year timeframe; thus, these samples cannot be considered the same time intervals as the 1-week surface water sampling events. This statement should be revised for clarity. It is also suggested that the second reference to “high-flow” be removed and instead referring to the third sampling event as “a stormwater event”, consistent with the descriptions in Section 2.4. Section 2 should also refer to Section 2.4 for descriptions of the three flow and storm conditions that are targeted.

3. Section 2.1.2, page 5. In this subsection, Chemistry and Rationale for Sampling Locations, the first paragraph states sampling will “analyze physical changes in the river dynamics.” It is not clear how the sampling in the FSP will analyze physical changes in the river dynamics. This statement should be revised. The last paragraph of Section 2.1.2 states that particle size distribution and particle concentrations will be measured using a Laser *In Situ* Scattering and Transmissometry (LISST). Additional details on how this equipment will be used should be provided in the text, and an SOP needs to be included in Appendix B that presents the set-up, calibration and operation of a LISST.
4. Section 2.4, pages 8-9. In this subsection, Sampling Schedule, additional discussion is needed to clarify that the three surface water sampling events will be conducted during a low-flow, a high-flow and a stormwater event (as described in this section) based on actual flow and storm conditions and not strictly on timeframes selected based on historical data. Additionally, the FSP should better define what is meant by “sustained flows” and provide durations or other criteria to be met. This section should also describe how the work will be conducted to minimize the potential for resuspension of sediment during sediment trap sampling to impact surface water sampling. For example, within a given transect, surface water sampling should not be conducted on the same day as sediment trap deployment or retrieval to enable time for disturbed sediment to resettle prior to sampling.
5. Section 2.5, pages 10-12. This section, Key Changes from Previously Approved RI FSPs, is helpful but the section is missing a discussion on the rationale for several of the listed changes. This justification should be included in the FSP. Further discussion is needed to define the “equally weighted volume” approach mentioned in the fourth bullet on page 10. Additionally, the SOP for the “newer model of the YSI” needs clarification. Section 2.5 has a note under the discussion of the newer model YSI of “see new SOP.” However, the SOP for surface water sampling in Appendix B of the FSP refers to the SOP LPR-FI-05 and to the Multiprobe YSI SOP in the 2004 Integral FSP.
6. The procedure for compositing the glass fiber flat filter samples and the resin columns from the high-volume surface water sampling should be described in the FSP.
7. Section 4.3.3, page 17, paragraph 1. This subsection, Surface Water – Field Parameters, states that the tubing intakes will be “approximately 1 foot below the datasonde”. This sentence is inconsistent with text on page 2 of the SOP in Appendix B, which states that the tubing will be “6 inches lower than the sonde housing”. These statements should be revised to be consistent. This section should also clarify the type weight that will be used to minimize the potential for metals contamination.
8. Section 4.3.4, page 18. The sediment trap procedures in the FSP need clarification. The description of the sediment sampler deployment is inconsistent with the illustration of the sampler setup shown in Figure 3. For example, Figure 3 indicates that an anchor and anchor line will be used but there is no such description in the text of Section 4.3.4.
9. Section 4.7, page 19. There is conflicting information between the waste disposal procedures described in this subsection and the procedures in Appendix B that should be clarified in the final FSP. Specifically, Appendix A calls for segregation of acid and solvent wastes and placing the wastes in drums at the onshore field facility with appropriate labels pending disposal. This information should be updated in Section 4.7. The location of the drum waste storage area should be indicated on a site plan.
10. Appendix A: A field equipment checklist should be provided in Appendix A.

11. Appendix B: The SOP for High-volume Surface Water Sampling for Analysis of Organic Compounds with Low Detection Limits. The SOP is difficult to understand because it does not contain diagram(s) presenting the details of the sampling equipment and work flows. Photographs and/or diagrams could be included in the SOP to help describe the work that will be completed. The SOP should also state how the pumping systems are set-up to avoid cross-contamination. Additionally, shipments to AXYS in Canada may require at least some custom forms for transporting across the border. Such issues should be discussed along with how the effort will ensure that holding times are not exceeded.

Matters of Style Comments

1. Section 2.5, Sampling Design and Approach section includes a sub-section that summarizes variations in sample design and collection from the Portland Harbor RI/FS (EPA 2016a, EPA 2016b), which is an effective way to capture this information. However, comparisons to the previous studies are also included throughout the FSP, which can distract from the focus on the FSP, which is to describe the details of the field sampling program to be performed. In these cases, the text should be revised to clearly define the work to be performed so there is no ambiguity to whether the previous work or the planned field work is being described.
2. Section 2.5, page 11, bullet 4: The fourth bullet on the page states “Teflon-line polycarbonate carboy.” This typo should be corrected because it’s presumed this should read “Teflon-lined”.
3. Figure 1. Adding the location of the boat launch, onshore field laboratory, and investigation derived waste storage area to Figure 1 would help define the work areas in this FSP.
4. Appendix A Field Forms, the field form for the Gravity PR2900 – Water Sample Log should contain a column to record the filter IDs. The Surface Water Sampling – Water Quality Parameter Log should have a column to record turbidity.

References:

AECOM. 2018. Programmatic HAZWOPER Health and Safety Plan Portland Harbor Superfund Site Pre-Remedial Design Investigation and Baseline Sampling. January 12.

Geosyntec. 2017. Work Plan Portland Harbor Pre-Remedial Design Investigation Studies Portland Harbor Superfund Site. December 14.